S.#	Topic	Sub Topics	Question	Answer Option (A)	Answer Option (B)	Answer Option (C)	Answer Option (D)
1	Force and Motion	Velocity	Rate of change in displacement is known as:...	speed	velocity	acceleration	momentum
2	Force and Motion	Displacement-time graph	A motion with increasing velocity can be represented on displacement-time graph by:...	a horizontal line	a curve line with decreasing gradient	a straight line with constant gradient	a curve line with increasing gradient
3	Force and Motion	Displacement	Displacement of an object with respect to a constant moving(v) frame in same direction is	x-vt	x+vt	x	x+vt+at^2
4	Force and Motion	Velocity	Average velocity of an object after completeing a circle of 5 m radius in 5 seconds	2π	π	zero	10π
5	Force and Motion	Velocity	Average velocity is defined as	displacement/time	distance/time	distance*time	displacement*time
6	Work and Energy	Work	Work done by friction force is always	Negative	positive	zero	maybe positive, maybe negative
7	Work and Energy	energy	In case of harmonic oscillator total energy remains	variable	infinity	constant	zero
8	Work and Energy	Kinetic Energy	A bullet fired from gun can pierce a target due to	heat energy	mechanical energy	acceleration	kinetic energy
9	Work and Energy	Kinetic Energy	The K.E. of a body of mass 2kg and momentum of 2N s is :	1J	2J	3J	4J
10	Work and Energy	Potential energy	Force constant k1 and k2 of two spring in ratio 5 : 4. They are stretched by same length, if potential enery stored in one spring is 25 J then potential energy stored in second spring is	25 J	16 J	100 J	20 J
11	Rotational and circular motion	Centripetal force	A body is moving in a circle at constant speed. Which statement is true?	The resultant force acts towards the centre of the circle	There is no resultant force	The resultant force acts away from the centre of the circle	none of these
12	Rotational and circular motion	Angular velocity	What is angular velocity?	Change in angular rotation / change in time	Change in displacement / change in time	Change in speed / change in time	Change in acceleration / change in time
13	Rotational and Circular Motion	Radian	The angular measurement is known as_____ measurement	parameter	area	circumfrence	all of these
14	Rotational and Circular Motion	Centripetal force	The centripetal acceleration formula is given as	V/r	r/V	ma	none of these
15	Rotational and Circular Motion	Centripetal force	The centripetal acceleration is maximum when radius r is	increasing	decreasing	constant	none of these
16	Waves	Speed of sound in air	Which group consists of only electromagnetic waves:	microwaves, radio waves, infra red	microwaves, radio waves, sound	microwaves, water waves, infra red	waves on a rope, radio waves, infra red
17	Waves	Principle of superposition/superposition of sound waves	A wave passes through a medium, each particle of the medium performs 100 complete vibrations in 5 seconds. What is the frequency of the wave:	2 Hz	20 Hz	4 Hz	40 Hz
18	Waves	Observer is moving away from a stationary source	In a periodic wave, the distance between second and fifth crests is 15 cm, what is the wavelength of the wave?	45 cm	5 cm	1/5 cm	1/3 cm
19	Waves	Amplitude	Frequency of a travelling wave is 2000 Hz. Its speed is 300m/s. What is its wavelength?	20/3 m	20x3 m	3/20 m	2/3 m
20	Waves	Angular frequency	The points which are in phase are separated from one another through a distance of :	1 wavelength	1.5 wavelength	0.5 wavelength	2.5 wavelength
21	Thermodynamics	Specific heat and Molar specific heat/specific heat capacity	A car of mass *M* is moving with speed *v*. The brake of mass *m* and specific heat capacity *c,* is used to stop the car. If half of the kinetic energy of the car is absorbed by the brake, than what is the increase in temperature of the brake?	$Mv^2/ 4mc$	$Mv^2/2mc$	$mv^2/4Mc$	$mv^2/2Mc$
22	Thermodynamics	Specific heat and Molar specific heat/specific heat capacity	A 500 W electric heater is used to heat 1 kg of water without energy losses. The specific heat capacity of water is 4.2 kJ kg K . What is the time taken to heat the water from 25 °C to 75 °C?	7 seconds	42 seconds	7 minutes	420 minutes

23	Thermodynamics	Specific heat and Molar specific heat/specific heat capacity	A container is filled with oxygen and helium at the same temperature. The molar mass of oxygen is 32 g/mol and that of helium is 4 g/mol. What is the ratio: average speed of oxygen molecules --- average speed of helium molecules	1/√8	√8	1/8	8
24	Thermodynamics	First law of thermodynamics	Isothermal system has constant	Temperature	Pressure	Entropy	Energy Conservation
25	Electro-statistics	Coulomb's Law	Two point charges are at the distance *d*. If force between these two charges is *F*, then what is the force between charges when the distance between them is *3d*?	F/3	F/9	F/3 d	F/9 d
26	Electro-statistics	Capacitance of a parallel plate capacitor	What is the change in kinetic energy of a proton when it is accelerated through a potential difference of 2MV?	0.32 μJ	0.32 nJ	0.32 pJ	0.32 fJ
27	Electro-statistics	Charging and Discharging a Capacitor	The greek word "xeros" and "graphos" means:...	sharp graphics	dry writing	wet writing	wet graphics
28	Electro-statistics	Charging and Discharging a Capacitor	Which one is the correct statement about selenium?	selenium is a good conductor	selenium is a good insulator	selenium is an insulator in the dark and becomes conductor when exposed to light	selenium is an conductor in the dark and becomes insulator when exposed to light
29	Current Electricity	Potentiometer	The stator of phase shifting transformer for use in conjunction with an A.C. potentiometer usually has a	Single-phase winding	Two-phase winding	Three-phase winding	Any of the above
30	Current Electricity	Ohm's Law	_____ is a source of electrical energy having fixed polarity and terminals	Motor	Metals	Battery	Generator
31	Current Electricity	Specific resistance or resistivity	Two wires of copper are of the same length but have different diameters. When they are connected in series across a battery, the heat generated is H1 When connected in parallel across the same battery, the heat generated during the same time is H2 Then :	H1 = H2	H1 < H2	H1 > H2	H1 > H2
32	Current Electricity	Kirchhoff's Rule	Kirchhoff's current law is applicable to which type of circuits:	Series	Parallel	Any of these	None of these
33	Electromagnetism	Magnetic flux density	No force acts on a current carrying conductor when it is placed-	perpendicular to the magnetic field	parallel to the magnetic field	far away from the magnetic field	inside a magnetic field
34	Electromagnetism	Magnetic flux density	Magnetic permeability has units as	Tesla	henry	Tesla/m	Henry/m
35	Electromagnetism	Magnetic flux density	Magnetic field outside of a long solenoid is	varying with radial distance	uniform	zero	not enough information
36	Electromagnetism	Magnetic field	Is it possible to visualize magnetic flux lines	yes directly we can see with eyes	we need microscope	we need telescope	All cases are not possible
37	Electromagnetic Induction	Faraday's Law	emf = -N(ΔΦ/Δt) is according to	Ampere's Law	Faraday's Law	Lenz's Law	none of these
38	Electromagnetic Induction	Lenz's Law	The Lenz's law refers to	induced current	induced potential	motional emf	all of these
39	Electromagnetic Induction	Transformers	For a 100% efficient step down transformer	voltage in primary and secondary are equal	current in primary and secondary are equal	input power is same as the output power	output power is zero
40	Electromagnetic Induction	Generating electricity-Alternating Current Generator	Devices that consume electrical energy in the external circuit of generator are known as	appliances	machines	motors	load
41	Electronics	Rectification	A full wave rectifier is operating from 50 Hz mains, fundamental frequency of ripple will be	100 Hz	25Hz	50Hz	200Hz
42	Electronics	Semiconductor	Majority charge carriers in P-type semiconductor are	Holes	electrons	neutrons	protons
43	Electronics	Diode	In the breakdown region zener behaves like a	Contant current	Constant voltage	constant resistance	none of them
44	Electronics	Diode	If the temperature of diode increases the leakage current will	increses	decreases	remains same	none of them
45	Dawn of Modern Physics	The wave-particle duality	white light gives spectrum after occurring	diffraction	interference	reflection	all of these
46	Dawn of Modern Physics	The wave-particle duality	Photocell is similar to	photoelectric effect	compton effect	photoluminescence	none of these

47	Dawn of Modern Physics	The wave-particle duality	The concept of work function was given by	Bohr	Einstein	Rutherford	none of these
48	Dawn of Modern Physics	The wave nature of particles	The electron shows purely a ____ when free.	particle nature	wave nature	dual nature	it transform to photon
49	Nuclear Physics	Half Life and rate of decay	Half life of a radiation active element is that period in which half of the atoms	diffuse	decompose	disturbed	decay
50	Nuclear Physics	Biological effects of Radiation	Iodine-131 is used to trace which cancer	lungs	thyroid gland	breast	liver
51	Nuclear Physics	Law of radioactive decay	Half life of Au-198 is 2.7 days what will be the activity of 1 mg of Au-198	120 Ci	200 Ci	240 Ci	280 Ci
52	Nuclear Physics	Half Life and rate of decay	what is the maximum electron energy in neutron beta decay	783 eV	783 KeV	783 GeV	783 Tev
53	Atomic Spectra	Atomic Spectra / Line Spectrum	The wavenumber of a photon in brackket series is 9/400 R then electron transited from orbit with quantum number	n=3	n=2	n=4	n=5
54	Atomic Spectra	Atomic Spectra / Line Spectrum	The longest and shortest wavelength of Lymen series is	1215 A to 912 A	1215 A to 500 A	1215 A to 700 A	900 A to 700 A
55	Atomic Spectra	Atomic Spectra / Line Spectrum	The ratio of wavelength of last line of Balmer series and last line of lymen series is	2	1	4	0.05
56	Atomic Spectra	Atomic Spectra / Line Spectrum	The ratio of longest wavelength of of Balmer series and last line of lymen series is	4/9	9/4	27/5	5/27